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SURGICAL MEMORANDA.

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OBSERVATION I.

Contusion of skull without appreciable fracture; symptoms point to pressure on excito-motor region of cortex; trephining; negative results of exploration excepting some evidence of subdural or meningeal hemorrhage. Recovery.

Joseph Sanders, a strong, healthy colored boy, aged 18 years, driver by occupation. Admitted in ward 2, Charity Hospital, April 12, 1886. Patient was led to the ward by his sister, who explained that two days before admission patient had been struck a blow on the left side of the head with a heavy stick, which had knocked him senseless. He recovered quickly, however, from the immediate effects of the blow, and succeeded in reaching his home without difficulty. For several hours after the occurrence he felt tolerably well, with the exception of great soreness at the seat of injury. His mind was perfectly clear, and he gave no evidence of mental disturbance. After the lapse of several hours, however, he began to change; he grew morose and stupid; he gave "queer" answers, and staggered like a drunken man whenever he walked. This condition continued to the time he was brought to the ward for treatment. Here the writer subjected him to a close examination.

The patient sat motionless, with his eyes closed and his chin resting on his breast, in a very soporose state. He would speak only when persistently questioned, and then very little and incoherently. Could not tell his name correctly; called himself several other names. On further examination it was noticed that he only moved his left arm and leg, the right extremities lying motionless all the while. By rousing and fixing the attention of the patient the left arm and left leg could be placed *voluntarily* in any required

attitude. On the right side this could not be done without support, and whenever this was removed the limb dropped at once in a palsied, inert manner. Voluntary motion is not entirely abolished; paresis only existing; anæsthesia marked in both upper and lower extremities. Examination of the cranium reveals a tumefaction of the scalp over the left parietal eminence, about one inch from the sagittal (to the left) and about two and one-half inches behind the bregma. No depression can be felt anywhere at the site of injury. Temp. 99, P, 78. The patient was immediately put to bed and cold iced compresses applied to head over the tumefaction.

The next morning, April 13, as the patient presented no signs of improvement, but, on the contrary, was worse, I decided, with the concurrence of several colleagues of the house staff, to trephine over the site of injury, and to remove, if possible, the cause of trouble, which was suspected to be either depressed bone or a blood clot. The scalp was shaved and scrubbed with bichloride solution; and without any anæsthesia, for the patient was now almost comatose, a large trap-door incision was made through the scalp to the periosteum, and the crown of a large Galt's trephine applied over the left parietal eminence, at a point where the now denuded bone appeared to have been very slightly indented. After the removal of the disk, the dura presented itself, bulging at the opening, and of a color darker than usual; the needle of an exploring syringe was now introduced for a distance of over one inch beyond the level of the dura and then gradually withdrawn. As this was done the chamber of the syringe was filled with blood. The needle was again introduced in another direction and again the syringe was removed full of blood. After the removal of the needle a considerable amount of blood trickled from the puncture and the dura appeared to bulge less prominently.

It was now decided that a blood clot, subdural or meningeal, was the probable cause of trouble and that it was more

prudent to leave the dura mater without incision, especially in view of the fact that speech seemed to be markedly affected, indicating a probable extension of the clot or hemorrhage toward the lower borders of the Rolandic region and forward and downward toward the Island of Reil and the external inferior aspect of the frontal lobe. If the supposition was correct, it would have been a most hazardous procedure and one of questionable propriety, to have extended the trephine opening any further or to have attempted the extraction of the blood clot, if such existed. For this reason a careful antiseptic dressing was applied to the wound and the patient sent back to the ward. He barely complained and gave no evidence of pain during the whole procedure, which he stood throughout without anæsthesia.

Mr. George H. Lea,* then resident interne of the service, who largely and most intelligently conducted the after treatment of the case, took the following notes:

April 14, morning—Day after operation. Patient's condition improved. Has passed a very quiet night. Answers questions intelligently, but does not speak spontaneously; has to be urged to answer; can move his right arm and leg by willing it; sensibility much greater than yesterday all over the affected region. He still shows evidence of paresis. Pulse 64, T. 98½.

Evening—Asks for food, specifying eggs and buttermilk; is more disposed to converse; begins to realize his condition and surroundings, though is not as interested in them as he should be.

April 15—Temperature, 100; pulse, 72. Patient quite talkative. Some blood and serous discharge has soaked through dressings; they are changed with antiseptic precautions. No paresis or anæsthesia of the extremities.

April 16—Shows greater tendency to sleepiness than yesterday; right arm not as well controlled by the will.

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Patient is costive, and one drop of ol. tiglii with one drachm of castor oil is administered. This, with the assistance of a large enema, produces a large evacuation. Kidneys acting very freely, and patient gets out of bed to urinate without assistance, but appears too indifferent as to whether he urinates in the chamber or on the floor.

April 17—Mind clear this morning, and gives a detailed account of the manner in which he was hurt. Recognizes Dr. Matas, who has been absent three days.

April 20—Patient continues to do well in every respect. The head bandage has been changed; some suppuration in spite of stringent precautions. Slight œdema of the eyelids noticed; no albuminuria; fear erysipelas, but temperature is 98 4-5°; the pulse full, strong and slow.

April 22—The œdema of the lids is almost gone. No erysipelas. Wound granulating, but an abscess from glandulitis of the neck (secondary to wound) develops in left post-cervical region. Abscess evacuated, leaving some induration and stiffness of the neck.

April 28—Patient is discharged well.

Remarks—The history of this case would suggest the diagnosis of meningeal or subdural hæmatoma. The remarkable features are: that the patient presented distinct evidences of a large and well localized cortical compression; the condition was associated with stupor that was rapidly progressing toward coma; trephining over a spot corresponding very closely to the upper extremity of the fissure of Rolando was followed by rapid, almost immediate improvement. The dura was not incised, but considerable blood was abstracted by the exploring syringe and mainly by subsequent oozing through the puncture in the membrane (over 2 ounces in all). Diminished tension of the dura very ikely followed the removal of the disc of bone. The question that now arises is, was the prompt and marked relief of the symptoms due to the operation or was it independent of it? The tendency is to attribute the recovery to intervention, though it must be candidly admitted that

it is remarkable that an operation so moderate as this should have so greatly influenced and so rapidly altered for the better, a grave and extensive condition like the one presented by this patient.

OBSERVATION 2.

Traumatic epilepsy associated with caries and necrosis of the left temporal and frontal; trephining and gouging of necrotic area. Death in an epileptoid fit one month after operation. Autopsy negative.

David Wilkie, white, laborer, aged 29 years, native of Glasgow, Scotland; admitted in ward 8, December 16, 1886. This patient, who is an intelligent, muscular man, and apparently healthy, though pale, stated that two years before admission he had been struck with a sledge hammer on the left temple. He had been knocked senseless by the blow and had been a long time in recovering consciousness. He stated that the wound produced by the injury had healed, but a few months afterward an abscess had developed at the seat of injury, which was evacuated by a surgeon, but never healed. His general health had not suffered very perceptibly since the injury until one year after the occurrence, when he was first stricken with a fit, which, after several repetitions, was recognized as epileptic by some physician whom he had consulted. These attacks were repeated at irregular intervals, sometimes coming two or three times a month and at times leaving him undisturbed for six or eight weeks.

At the time he was first examined by the writer he had been for some time in the ward, and had taken the bromides and other preparations with some benefit, though the attacks would return whenever he neglected to take medicine. At the time of examination the patient presented no notable general peculiarity, excepting the slight pallor of the skin already noted. The patient complained of nothing, excepting a circular ulcer, which attracted immediate attention to his left temple. The ulcer was punched out and extended through the whole thickness of the soft

parts down to the bone, which was seen completely denuded and bathed with a purulent discharge, which would have become offensive had the patient neglected to keep it clean by frequent antiseptic washings. The ulcer measured about one inch in diameter, and was situated (its anterior and superior border) on a level with the temporal ridge of the frontal, at its juncture with the external angular process of the same bone. By introducing a blunt-pointed probe it was discovered that the ulcer was undermined throughout its circumference, the probe passing for over one inch under the soft parts and touching the denuded and necrosed bone ; this denudation extending a little further towards the ear and into the temporal fossa.

April 14—Shortly after the writer had taken charge of the service, the patient was placed under chloroform and two incisions were made through the edges of the ulcer sufficiently long to form two flaps, which, when lifted, permitted a thorough inspection of the diseased fleld. The crown of a large trephine was now applied over the centre of the necrosed area, about three-fourths of an inch back of the external angular process of the frontal, and a disc of bone removed. The dura was exposed and presented a normal appearance; the necrosis had barely reached the vitreous plate, and this fact accounted for the healthy appearance of this membrane. A hypodermic needle was now introduced through the dura into the brain substance below, for the distance of one and one-half inches with the view of exploring for any possible anomalous subdural accumulation, but in the two trials made the exploration gave negative results, as was anticipated. The diseased bone was now attacked with the chisel and gouge-forceps until all the necrosed lamina was removed and healthy bleeding bone tissue reached. The edges of the ulcer, which had become hardened and cicatricial, were pared and the flaps which had been dissected off were replaced and sutured. A carefully prepared antiseptic dressing was placed over the whole.

No noticeable effects followed the operation. The patient said that he felt better and relieved of a dull headache, which had affected him for some time before the operation. The week after the operation the dressing was removed, and the wound was found healthy and granulating, granulations springing from the dura mater and surrounding parts. The wound was redressed, and the patient sat up. He had had no "fits" thus far, and he was entertaining great hopes that he would never suffer with them again. On May 10 he was seized, much to his consternation, with a most formidable attack, which was well observed by the nurse, and which had all the characteristics of an epileptic fit. The wound, which thus far had been doing exceedingly well, was again examined and found to present no unusual phenomena. Bromide of potassium, in combination, was again ordered, but unfortunately during the course of the next night the patient was again seized with another convulsion, or series of convulsions, which ended with his life while in a comatose condition.

The next day a systematic cadaveric examination was made by the writer, assisted by several colleagues and students. Marked evidences of cerebral hyperæmia existed. The cortex and meninges were otherwise perfectly normal, the dura only showing a granulating circular area, corresponding to the point where the disc of bone had been removed. The gross appearance of the whole brain and of its vessels appeared to indicate health outside of the congested state of the bloodvessels. The lungs, heart and abdominal organs were practically healthy. The kidneys, which were especially examined, revealed no abnormality; the urine was albuminous, as had been observed during life. The specific gravity a few weeks before death had been noted to fluctuate between 1016 to 1018.

The cause of death, outside of asphyxia from spasm of the respiratory muscles, has remained obscure to this day in the mind of the writer.